

### **REMARKS**

Entry of the amendment is respectfully requested since it should reduce issues on appeal and is believed timely since this is the first time it could have been presented. Reconsideration is respectfully requested in light of the foregoing Amendment and remarks that follow.

Claims 1-23 are before the Examiner. New claims 22-23 are directed to embodiments directed to the composition of domain and the nature of its distribution within the support. Claims 1, 2 and 4-7 are amended to address points raised by the Examiner or to place the claims in a format more consistent with U.S. practice.

As requested, a new abstract is enclosed. Withdrawal of the objection is respectfully requested.

The objections to the claims have been addressed by amendments which place the claims in a format more suited for U.S. practice. Withdrawal of the objection is respectfully requested.

The parent application No. 09/ 971,668 will be allowed to go abandon. This should moot the same type double patenting rejection.

Claim 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter with applicant regards as the invention. Applicants respectfully traverse in light of the amendments to the claims.

Antecedent basis has been provided for claims 4-7. Note new claim 22, the change in dependency for claims 4-7 and the amendments to claim 1. Support for the amendment to claim 1 and claim 22 is to be found on in the passage starting on page 12 at line 31 and continuing to page 13, line 5 (-... finished support contains domains of particulate oxides ...."). Claim 1 has been further amend to recite the basis for the weight percentage and to more closely employ traditional U.S. product by process claim language. Support for the weight basis is to be found on page 10 at lines 24 to 25 of the specification.

It is submitted that in light of the amendments to the claims, withdrawal of the rejection is believed to be in order and is respectfully requested.

Claims 1-2, 4-9, & 11-21 are rejected under 35 U.S.C. 102(a) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Trubenbach et al. ("Trübenbach") "hereinafter Trunbenbach '898", (US 5,935,898). Applicants respectfully traverse.

The rejected claims are of two types- product by process and a method of making. Here, the pertinence of the reference varies depending on the claim type. This will be discussed in turn.

With product by process claims, case law and office practice permit the Examiner to rely on the "doctrine of inherency" once the product of the reference is established as being reasonably similar to that claimed. This policy is based, in part, on the premise that since the Office does not possess laboratory facilities to directly compare the products. The burden is shifted to applicant, who is better able perform the experimentation necessary to compare the products, once Office establishes that the reference reasonably shows a product which is similar to those claimed, e.g. the methods of preparation are so similar that similar or identical product would result .

Claim 1 has been amended to recite the presence of the particulate oxide or phosphate "domains", which are distributed throughout the support due to the method of preparation. The domains correlate with catalyst support stability, i.e. improved aging resistance under hydrothermal conditions. Note pages 12 and 13 of the specification. The stability of the support has been demonstrate in the specification. Note Examples 1-9.

It is submitted that the reference products and the claimed products are clearly different. Their methods preparation and composition are not the same nor are their characteristics.

Trubenbach et al. (US 5,935,898) disclose monomodal or polymodal catalyst supports or catalysts having a narrow pore size distribution. The BET specific surface area is from 0.01 to 250 m<sup>2</sup> and a mean pore diameter of from 50 to 3000,000nm. A mixture of various alternative materials are taught. This mixture is formed, and then shaped, followed by the steps of binder removal with gaseous acid, residue pyrolysis and presintering. Various further optional treatment steps are mentioned.

Laundry lists of possible mixture components are mentioned including inorganic powders (I), metallic powders(II) active components(III) and organic powders(IV along with polyoxymethylene homopolymer or copolymer (B) and a dispersant (C). There are no examples in Trubenbach et al. where the claimed catalyst support is reasonably. There is no match up of staring materials. There is no match up of process steps and conditions.

The mixture used in the instant invention does not contain a metallic powder (II), the organic powder (IV) or the polyoxymethylene mono polymer or copolymer (B) taught by Trübenbach et al. The instant claimed catalyst and support is used for the hydration of olefins to alcohols, e.g. ethylene to ethanol, propene to isopropanol. The Trübenbach et al catalyst is mentioned in the context of a laundry list of reaction types but exemplified in the context of chlorine production. See column 11 and 12. In column 12, line 5 the hydration is mentioned.

The instant catalyst support contains 90 to 99.5 % silica and 0.5 to 10 % of an oxide or a phosphate of the elements II A - IV A. Trübenbach et al do not disclose these relative amounts. According to the instant invention silica is the main component of the support. This does not appear to be the case with Trübenbach et al., who are silent in this regard.

Further, Trübenbach et al. does not expressly mention the characteristic of improved aging resistance under hydrothermal conditions.

In light of the above, it would not be reasonable to assume that there is inherent production of the claimed process using the Trübenbach et al. process. The specific proportions of materials employed by applicants are not taught nor are the specific series of method steps and conditions. There is no mention of the improved aging characteristic, supra. The doctrine of inherency requires reasonable certainty of an outcome for its application. This certainty has not been established here. Withdrawal of the rejection is requested.

There is no discussion in the Office Action as to the inherent performance of the claimed method by Trübenbach et al. Also it is not clear why the claimed method would be obvious based on Trübenbach et al. teachings. Trübenbach et al. disclose a long list of products I, II, III, a long list of uses, method steps and conditions. Myriads of choices without some guidance which would lead one to the claimed invention. Further, without a reasonable expectation of success for each possible modification, the rejection as framed appears to be based on an "obvious to try" rationale. This is not statutory obviousness. Accordingly, a prima facie case has not been established. Withdrawal of the rejection to the extent that it is based on 35 U.S.C. 103 is respectfully requested.

Claims 1-3 & 8-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tamura et al., "hereinafter Tamura '6650", (US 5,840,650). Applicants respectfully traverse.

As noted above the rejected claims are of two types- product by process and process of preparation and are not similarly situated relative to the teachings provided by Tamura et al. The rationale provided in the Office Action is directed principally to the product by process claims. The method claims are not separately discussed.

Also noted above are the amendments to claim 1.

It is respectfully submitted that the Tamura et al processing steps and conditions are different from those. There is no mention of the improved aging resistance under hydrothermal conditions characteristic of the instant claimed supports. It is not clear from these differences that there would be a reasonable expectation that the catalyst supports would be the same as those claimed.

Tamura et al. (US 5,840,650) disclose a heterogeneous catalyst used for producing an oxirane compound, by reacting an olefinic compound with an organic peroxide. The catalyst is substantially insoluble in the reaction mixture and comprises at least one silicon compound selected from the group consisting of silica and inorganic silicates in chemical combination with an oxide or hydroxide of titanium. The process of preparation comprises impregnating the silicon compound with a solvent containing the titanium compound, removing the solvent, washing the impregnated silica and then calcining the washed impregnated silica. The "washing " is the new and important feature according to Tamura et al. Non-chemically bonded titanium is thought to impact the performance of the catalyst. The disclosed silica may be AEROSIL (Degussa), which is a fumed silica (see column 2, lost line). The washing solvent may be an organic solvent like alcohols or ketones. The titanium compound may be titanium tetrachloride, titanium salts of organic or inorganic acids. After the washing and

calcination the catalyst is contacted with a silylating agent before use (see column 4, line 50). Tamura et al. do not disclose the use of their catalyst for the hydrogenation of olefins.

According to the instant invention silica, which is a preferred fumed silica, and a titanium oxide or a titanium phosphate are mixed, formed and calcined. The catalyst according to the instant invention shows a better stability during the hydration reaction of olefins.

In comparative example 4 of the present application (page 20 of the specification) a method of treating the silica support with an organic titanium-compound in a solvent is described and some disadvantages are mentioned. The use of inorganic solvent in the industrial production of this titanium containing support material requires the use of special explosion proof equipment and buildings. Further, large amounts of organic solvents have to be handled, and organic wastes have to be burned or otherwise recycled. This material is difficult and expensive to produce.

In contrast, the instant invention has the advantage of production ease and lower production costs.

Additionally, it can be seen from the table on page 25 of the specification that the supports made by an organic titanium compound (comparative examples 4 and 5) suffer from substantial Ti-loss during the acid loading. The Tamura et al. support would be expected to have the same disadvantage. The instant claimed supports do not have the loss of titanium while loaded with acid.

It is respectfully submitted that Tamura et al process steps result in a patentably distinct product. Note distinguishing characteristics discussed above.

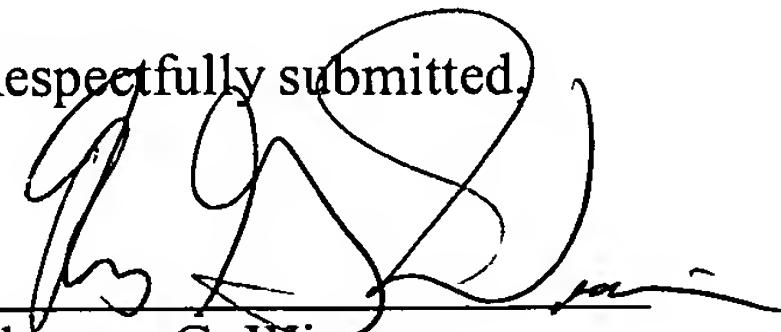
There is no rationale provided in the Office Action suggesting why the Tamura et al product teaching would render the claimed support product obvious. Withdrawal of the rejection is respectfully requested as to the product claims.

There is no discussion in the Office Action as to why the claimed process would be inherently performed. There is no discussion in the Office Action as to how and why the Tamura et al. process would be modified to arrive at the process as claimed. Withdrawal of the rejection as to the method claims is also respectfully requested.

In view of the foregoing amendments and remarks, the application is believed to be in condition for allowance and a notice to that effect is respectfully requested.

Should the Examiner not find the Application to be in allowable condition or believe that a conference would be of value in expediting the prosecution of the Application, Applicants request that the Examiner telephone undersigned Counsel to discuss the case and afford Applicants an opportunity to submit any Supplemental Amendment that might advance prosecution and place the Application in allowable condition.

Respectfully submitted,



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